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"Stomach Staggers" in Cattle.*

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I decided to address you upon stomach staggers or cerebro-spinal meningitis, because, for one reason, I have never come across any text book that gave much information on it, nor was I ever with anyone who could enlighten me on the disease, as I went straight from College into practice for myself. Therefore what I put before you this afternoon are merely my observations and experience of this puzzling affection.

I prefer to call the disease stomach staggers; it is a little vague certainly, but I do not think we could get a word which would more fitly express this complaint, which we find in so many different degrees of seriousness, and so many different phases; again, I do not think we could get a name which would convey more clearly to the farmer what is wrong with his animal than the words stomach staggers; he at once fully understands the serious possibilities. Farmers are too intelligent nowadays to be much impressed by high-sounding names.

I consider stomach staggers is the most frequently acute disease of the digestive system.

When I first came in contact with the disease I thought that it must be a very deadly poison, when an apparently healthy cow could give its usual milk, and take its food, and within half-an-hour fall down in a convulsion and be dead within an hour; the *post-mortem* shows all the organs perfectly healthy, the rumen not too full, the omasum not any drier than you find in a quite healthy animal that has been killed in the slaughter-house, and often not so dry as some; no constipation about the bowels (in fact the fæces are quite normal), but on looking more closely at the omasum we find more or less inflamed patches and streaks throughout the mucous membrane and walls; we also find a similar condition of the abomasum, with a ruddy flush throughout the mesentery, and the same inflamed appearance on the mucous membrane of the duodenum and parts of the bowels. That is usually all one finds about a cow which has died suddenly from stomach staggers.

I do not think I could give any poison which could kill an animal so quickly, and leave so little trace behind; but I had no doubt in my mind that it was a poison or toxin which caused the death. From where did it come? How was it formed? These are questions which I have some difficulty in answering; of course we have cases of stomach staggers which hang on for weeks, and even months.

There is not, I think, any other disease which shows so many different phases. The symptoms in some cases are very characteristic of the disease; in other cases the symptoms shown are very erratic and peculiar, and such cases are difficult to diagnose. In other cases there is almost an entire absence of symptoms which would indicate in any way that the animal was suffering from stomach staggers. Here is a case in point.

I was asked to examine a cow one month from calving, which was seen a little off her food that morning. When I got to the farm, the owner told me he did not think there was very much wrong, but he had lost a cow suddenly with staggers two days previous to that, and he was not taking any chances with this one. It was 3 o'clock in the afternoon when I got to the farm. The cow did not seem as if there was much wrong; she was standing chewing her cud, temperature and pulse being normal; the stomach, if anything, was a little too full, but not hard; the tongue was, I thought, slightly larger and whiter than usual. This was the only indication of staggers, but the cow seemed so healthy otherwise that I felt if she received a mild purge and food was withheld for two days that she would go on all right. I gave her 4lbs. of treacle and two handfuls of salts before I left and told the owner I did not think I needed to come back to see her. Two hours after I left the owner noticed the cow getting straight in the hind legs, and rocking somewhat; shortly afterwards she went into one convulsion after another, each one more severe and more prolonged than the previous one. I was sent for, but by the time I got there she was dead. I made a *post-mortem*, and found all the organs healthy except for the usual appearance of acute stomach staggers, proving that an animal can have the disease and yet show few or no symptoms even shortly before death.

I always consider that stomach staggers develops in three stages: (1) More or less paralysis of larger or smaller areas of the walls of the stomach and bowels. (2) The accumulation of part of the contents of the stomach and bowels at those paralysed areas for a longer or shorter time. (3) This accumulated food becomes fermented by a bad ferment forming a toxin, which seems to be very quickly and easily absorbed into the system, causing the varying symptoms which we usually find in stomach staggers. I often

*Presented at a meeting of the West of Scotland Division, held at Glasgow, on February 28, 1923.

think that in some cases it is not unlike the symptoms we see in a person who has taken too much alcohol. After all, whiskey is really a toxin got from fermented grain. This bad fermentation in the stomach does not depend on the fulness of the stomach, because we have animals taking staggers that seem to be fairly empty; neither does it depend on constipation, for we find cases of staggers where the animal is quite soft of the bowels and even scouring, but I think we get this bad fermentation taking place when we have some of the contents of the stomach and bowels lying there for some time.

I will give you an extreme case. In the month of July I was asked to see a cow at grass and scouring badly. I had the animal brought into the house. I treated her for diarrhœa, giving her a bottle of linseed oil, and then tonic powders. I saw her on the evening of the third day, and the cow seemed quite all right, so I advised that she be gradually put on to the grass again. Next day, just as the owner was about to put the cow out, she took a violent fit; in fact, she had several fits before I saw her. I bled her and treated her for stomach staggers. Two days afterwards I gave her a final purge; when it had time to take effect, I was surprised to find a quantity of corn seeds in her fæces. On making enquiry I was told that the last and only time she could have had corn was in the month of April. This corn must have been in the stomach about three months.

I have no doubt that most of you who have treated cases of staggers in the spring, after the animals have been one, two or even three weeks at grass, find that the animals are very loose of their bowels and passing nothing but grass fæces; but when you treat them for staggers, and after you give them their last purge you do not find grass coming from the bowels, but house-feeding, which had been given to the animals before they went to grass, proving that the contents of the stomach and bowels are not evacuated in the order in which they are taken. I never consider that stomach staggers is caused by what the animal has eaten within the last few days previous to showing symptoms of the disease; it is what has been eaten weeks or even months prior to this, and which has been lying there until it becomes infected by this bad ferment.

When examining the fæces of cows in good health, I often notice dark patches, and still more frequently do I see those dark patches in a stomach staggers case, especially when the patient is getting powder to tone up the walls of the stomach and bowels in preparation for a purge. I often find that tonic powders bring away more fæces (especially those of a dark colour) than a purge; the purge is inclined to pass over the top unless the walls of the stomach and bowels are toned up beforehand.

Causes.—To put it broadly, anything that will interfere with digestion (such as continued heavy feeding, which produces loss of tone in the walls of the stomach and bowels) may cause the affection. Therefore I may cite bad food, good food if not given judiciously and in proper quantities; absence of water, irregular watering, bad water, over heating, chills, sudden changes of temperature, sudden changes of food, too large quantities of food: seeded ryegrass, buttercups and ragweed. I know that ragweed will cause schirrhosis of the liver, but I consider most of those cases die of stomach staggers.

To diagnose staggers, one must often make use of a process of elimination: always make sure that it can be nothing else, and when in doubt you can never go far wrong in treating the animal for stomach staggers.

Symptoms.

General Observations.—Cows are usually off their food; in the case of a cow giving milk, she is giving less milk. The temperature is usually normal, except in a very few cases; the pulse is generally quick, sometimes soft, but often firm and hard. Respiration is normal as a rule, but in a few cases quick. The fæces usually appear to be quite normal; sometimes thin; but occasionally they are dry and coated with a considerable quantity of mucus. In nearly all cases the fæces are lacking in quantity; the animal may stand without food for several days, yet it does not seem to get very empty.

I will divide the symptoms into three classes, so that you may be able to follow me more clearly in prognosis and treatment.

First Class.—Respirations and pulse usually normal. Animals off their food or eating very little; if a milk cow, off her milk; the fæces are normal or firm, dark in colour or so in patches, and usually scanty; the nostrils are often dirty, like an animal with cold; the tongue large, thick and white, and there is frequently a bad smell from the mouth (occasionally it is very offensive); the stomach is fairly firm and full, but not always—animal gives a slight grunt, especially on putting pressure on the stomach. With regard to the general appearance, the head is often carried high; the eyes are bright and staring at the wall, but occasionally the head is carried low and the eyes look sleepy and heavy; slight movement or shaking of the head, a constant dripping or running of water from the mouth. The animal is very nervous and easily frightened, sometimes giving a great bellow as if it had got a fright. It may be restless and go about the field roaring as if in season; if in the byre it will often roar as if it wanted something, and will not lie down for several days; in those cases the animal usually looks empty. Sometimes it is dull and quiet and looks like a "piner," and if in the field will lie away from the others—the nostrils being dirty like an animal with cold; when walking it moves stiffly and slowly, and is sometimes dazed and not seeing very well; occasionally it is quite blind.

An animal suffering from stomach staggers will show one or more of those symptoms I have just mentioned, and often it is only after a very careful examination that one will discover any symptoms of stomach staggers at all.

Prognosis.—Usually those cows respond very well to treatment.

Treatment.—Prescribe 2ozs. of chloral in 4 to 6lbs. of treacle; plenty of tepid water to drink, but nothing to eat from two to four days. After the first twelve hours give stomach powders three or four times a day to tone up the walls of the stomach and bowels. On the third day give a purge if necessary; water *ad lib.*, a little straw to eat to excite the stomach and bring the animal to her cud, then gradually work her on to bran drinks, and keep her on straw for some days; no hays.

Second Class.—The temperature is often high and the pulse full, strong and quick; the respiration is sometimes quick; the animal is blind or partially so, boring up against anything with which it comes in contact. There are grinding of the teeth and a staggering gait; head very erect; violent trembling; staring at the wall, rolling or twitching of the eyes; legs stiff and rigid, sometimes taking convulsions. The subject will at times chew the cud between the convulsions and look as if nothing were wrong. She will sometimes work with her mouth as if it were chewing something or lick the foreleg all day; she is very nervous and will stand for days; all of which time she might be feeding and chewing the cud, or might even be milking fairly well. It is quite usual to find spasmodic movement of the hind legs and twitching of the muscles when walking, or the patient may walk in circles or to one side. On putting the hand on the back and pressing the spine, the animal bends down as if the back were very painful to the touch. She may be down and unable to rise, and it may appear as if nothing else were wrong. Often difficulty is experienced in keeping the animal on its sternum, and it will frequently lie better on one side than another; violent twitchings of the muscles may occur in various parts of the body, the hind limbs being violently jerked or flexed. The muscles of either one or both hind limbs may be hard or swollen as if they were cramped. The *post-mortem* appearance of those legs that are cramped is similar to black leg; in those cases the hair on the shoulders and sometimes over the whole body is wet with perspiration. These animals have a very high temperature, and respiration is very fast; the head is often turned round to one side, and if drawn out will flop back as if the neck were dislocated.

Prognosis.—If treated on the first appearance of the violent symptoms, these also make very good recoveries.

Treatment.—If it is a quick and violent case and the pulse full, I always like to bleed. Should a cow be in milk (no matter how long calved), I inject the udder. I then give as much chloral as will put them to sleep—from 2 to 6ozs. in from 4 to 6lbs. of treacle. As in the first class I mentioned, give stomach powders, but give them every four hours, and on third day give a purge. If you get watery evacuations, give a bottle of linseed oil and continue the stomach powders three times a day, always allowing as much tepid water as they like to drink, but give nothing to eat for four or five days, except a handful of straw to excite the stomach and bring the animal to her cud.

Third Class.—The animal suddenly goes off food and milk. Temperature may be 103° to 105°. She is down and the muscles of the hind limbs are swollen and hard; she lies on the belly with the hind legs tucked under her like a frog, or lies on the belly, a hind leg on either side pointing forward.

Prognosis not very good. The animal will eat well, chew the cud and give milk, but I have never seen a case taking up either of those two positions that ever got to her feet. There is never any feeling in the hind legs—in fact, she always remains completely paralysed.

I might add another case to this class. Animal suddenly off food and milk. Temperature normal; pulse very soft; surface of the body cold, bad smell in the mouth, water dripping from its eyes and mouth; dull and listless; stomach fairly full and soft; fæces normal. If standing, will not take any notice of anything; if lying, will make no effort to rise; usually unable to swallow.

Prognosis.—The case is usually hopeless. They usually do not live long enough to allow treatment.

Post-mortem.—All the organs are healthy, except for the usual appearances presented by stomach staggers cases on the walls of the stomach and bowels. The rumen very full and fairly moist, but giving off a peculiarly pungent, clinging smell, which is very characteristic of this type of case. When purges are administered to the two cases I have mentioned in this class, I find the fæces have the same peculiar, clinging smell.

To encourage and assist the discussion, I wish to put forward a few questions.

Is stomach staggers more common in some parts of the country than others?

Is the disease more common on some farms or in some fields on certain farms than on others?

Are Ayrshire cattle more liable to take staggers than any other breed?

Is the disease produced by certain elements in feeding, grasses, etc.?

Is there any certain way of diagnosing this disease?

What is the best method of treatment?

What is the best purge to give?

What is best to be done when we get watery evacuations?

Is it any use to continue treatment when we get complete paralysis of the hind legs?

Is there any difference between stomach staggers in cattle and trembling in sheep?

Is trembling in sheep more prevalent on some farms than on others?

I am delighted to see so many students here to-day, and shall be very pleased if they would take part in the discussion. If there is anything on which they are not very clear or any question they would like to ask me, I shall be very pleased to answer to the best of my ability.

DISCUSSION.

Mr. J. D. POTTIE (Greenock) congratulated Mr. Meikle and thought that stomach staggers was more prevalent among Ayrshire cattle than in other breeds. He believed that food sometimes lay in the stomach two months. He never saw a case of stomach staggers without enteritis. House feeding he thought less liable to cause stomach staggers than grass, and advocated cold applications to the back of the head and neck.

Mr. D. BROWN (Kilwinning) did not agree with Mr. Pottie, and thought that stomach staggers was more often caused by house feeding than by grass. He would like to ask Mr. Pottie how he could tell when the cause of the disease was in the first, second, third or fourth stomach ?

Mr. POTTIE: When the animal is ill and still chewing the cud the disease is not in the rumen, and *vice versa*.

Mr. BROWN had great difficulty in diagnosing stomach staggers as apart from milk fever. He believed in bleeding if the case was seen early enough. He liked to give a good purge of mag. sulph. and aloes. The latter he considered one of the best purgatives for cattle. He did not think the locality had anything to do with the incidence, but that it was due to errors in dieting, heavy feeding, seeded grass, etc., etc. He thought the essayist gave too large a dose of chlor. hyd.

Mr. G. SCADE (Galston) spoke to the great difficulty that existed in diagnosing as between stomach staggers and milk fever, and also between these diseases and tuberculous meningitis, or auto-intoxication from retention of the second cleansing. In spring, stomach staggers cases were most prevalent, especially when the grass was late. In these cases diarrhœa was present and treatment was more effectual. In cases where paralysis was present the prognosis was very bad. Trembling in sheep, he thought, was the same disease. Shepherds gave purgatives to the ewes and injected the udder with great success. He much preferred pot. brom. and treacle to chlor. hyd. and mag. sulph. He did not think Ayrshires more subject to stomach staggers than other breeds.

Mr. PETER WILSON (Lanark) would confine the name stomach staggers to the disease showing the symptoms seen in those cases met with in the autumn, when rye grass had run to seed. The animal had diarrhœa, followed by constipation, blindness, staggering, and took neither food nor water. Treatment was very unsatisfactory. The contents of the third stomach were very dry and packed tightly. The medicine might purge the patient and not loosen the contents of the third stomach. He preferred an oleaginous purgative. Calomel was very good, and was a great favourite of the late Principal Williams. He did not think the cases seen in the spring, in which the animals had diarrhœa after being put to grass were cases of stomach staggers, but inflammation of the fourth stomach and bowels. These cases were not difficult to treat.

Professor WM. ROBB (Glasgow) congratulated Mr. Meikle on his pluck in telling of his failures. As a city man he would rather leave the discussion to the country practitioners. He had great difficulty in diagnosis. In his experience more cases of stomach staggers occurred before the cows went to grass, when the roots were scarce and they were being fed on highly nutritious food. He thought there was no cerebro-spinal meningitis, but simply an intoxication. How did injection of the udder cure a toxæmia arising from the stomach or the uterus ? Why did country practitioners not use the stomach tube in the treatment of this disease ? (Laughter.) He would like to have heard more about the treatment of stomach staggers by arecoline, eserine, barium chloride, etc.

Mr. JAS. F. TAYLOR (Cathlin) desired to thank Mr. Meikle for a very practical paper on a subject particularly interesting to country practitioners. A good deal had been said about the udder injection in stomach staggers. He himself used it because he had found it beneficial, combined with chlorodyne and a saline purgative. He did not think it good practice to give such a big dose of chlor. hyd., nor to give it in conjunction with mag. sulph. How did Mr. Meikle bleed a cow when it was mad with stomach staggers ?

In cases where paralysis or inability to rise followed stomach staggers or other disease he advised slinging. One or both legs might be injured, and if the animal was allowed to lie for days, mammitis often set in on account of the difficulty in milking the patient properly. One did not often find a loose box convenient in which to put the animal and, if left lying, these cases generally ended at the butcher's. He found that the most valuable and heaviest cows were the victims, and, coming up against the problem in a pedigree cow of great price, decided to try the horse slings with the assistance of plenty of men. The slings lifted the dead weight and the men put the legs into position, and this particular cow was saved. At other farms he found that man power was scarcer, and he therefore decided to alter the design of his slings, and in each successive case he had been in consultation with the saddler, making various alterations and additions to the equipment, until now he could practically dispense with most of the man power. If, after lifting the animal, she would not stand, they should let her down and try her again after a while.

Mr. D. CAMPBELL (Rutherglen) had great difficulty at times to decide whether a case was stomach staggers or milk fever, and, consequently, always injected the udder. Sometimes he found it hard to advise in a violent case where the owner could not make up his mind whether to slaughter or not. It might be a case of anthrax.

Mr. H. BEGG (Chairman): I think it is a little singular and perhaps regrettable that, although the essayist and most of those who have spoken on this subject to-day have tacitly declared their belief that the symptoms described are due to some form of

auto-intoxication, the term "stomach staggers" should be perpetuated. It may continue to serve in the vocabulary of the stockowner, but is perhaps a little unscientific for the professional man. It is also worthy of remark that Mr. Meikle uses the term "cerebro-spinal meningitis" as a synonym, after the fashion of the older authors, although he gives no evidence that he has, in any case, or at any time, examined the brain of any animal that has died from the disease and found lesions of meningitis. Again, it is noteworthy that, however confidently the essayist and several who have spoken relate the symptoms to definite disorder of one or other of the stomachs, all of them fear to submit their patient, if she be a milk cow, to treatment that does not include inflation of the udder. Why should they adopt the specific treatment for milk fever if they deny any relationship between milk fever and this so-called stomach staggers? It is now generally admitted that the results obtained in the treatment of typical milk fever by udder inflation equal if they do not excel the treatment of any microbial disease by its own specific vaccine or serum. Mr. Robb has touched the crux of the problem which they avoid explaining, and I too would ask, at which psychological day or hour after calving (when a cow having shown straight hind legs and gone down and being admittedly in need of the classical treatment) do they switch over in opinion from milk fever to so-called stomach staggers? My views on this question have been declared elsewhere, and I candidly believe the theory here set forth is better borne out in practice than any other that I have heard. It is to be admitted that quickly fatal cases of auto-intoxication or so-called stomach staggers are met with in dry animals as well as milk cows, and many of the most fatal instances occur at the grass.

Mr. Wilson has referred to the remarkably fatal cases that are sometimes met with in early autumn, when cows happen to be grazing where there is an abundance of over-ripe rye grass. These are specially referred to in Williams' *Medicine*, and many believe, and with good reason, that rye grass in this condition is dangerous for cattle. But it is, in my opinion, true that dangerous and often fatal auto-intoxication does occur in cattle, otherwise unprejudiced in health, when for any reason too sudden changes of diet are imposed on them. Cattle can learn to digest safely a great variety of foodstuffs provided the alterations in their menu are made in a sensible, gradual way. I have experienced an extraordinary run of fatalities on spring grass when a very sudden change early in May from chilly to genial growing weather caused many stockowners, keen to terminate the cost of house rations, to allow their herds to go abruptly on to a full diet of quickly-growing pasture. Cattle of all kinds failed to negotiate this sudden change safely, and unfortunately the majority were cows less than three months past their calving date and quite at the height of their utility as milk-producers. But it is common experience, and the remarks of most of the speakers to-day show that the condition described by Mr. Meikle is most frequent in the last third of the house-feeding season, when roots are almost if not quite finished, and there is not on the farms any efficient substitute.

Only a very small percentage of cases occur in animals that have not calved within the preceding three and a half months, and it is to be remembered that a very large number of cows are timed to calve in the first four months of the year. When in practice, I was very early led to inject the udder of prone cows (which, at least at that time, it would have been unorthodox to say were suffering from milk fever, because they were several days calved), and ere long I found myself applying udder treatment to inebriated cows as much as three months after calving, and with good results. In fact, it is good practice, especially for the young practitioner, to make a general rule of inflating the udder of every cow that is down and cannot get up, unless it is known that she has a bad foot or joint. Additional proof for the indictment of the causal factor of milk fever was found in the experience I had of animals of great reputation as deep milkers in preceding years (and perhaps with a history of having been down at some time with typical milk fever), which would calve normally and not go down as before, but become dull, listless, and saucy, and, by contrast, third-rate milkers. After several weeks, or sooner perhaps, if cajoled with appetising foodstuffs, such an animal was almost sure to go down, and nothing could do so much for her as inflation of the udder. The reasonable deduction is that many cows of the milk-fever type, although they may not develop typical milk fever at calving, have their health and tonicity prejudiced for periods of variable length by the elaboration in their system of this mysterious entity in doses too small to send the cow off her legs at once, but potent enough to slow down the functional activity of all the organs.

Because the train of symptoms resulting is perhaps most commonly seen about ten days after calving, many veterinary surgeons, and perhaps all stockowners, speak erroneously, in my opinion, of the cow as being sick of her second cleansing, even although this is admitted not to be in septic condition. The lateness in the appearing of the lochia is in my view relatable to the same cause as the constipation of the bowels, etc. The womb as well as the bowel has lost tone and fails to contract completely, and so retains for longer than usual the débris of the cotyledons. The contents of the bowel, by being unduly retained, loose water by rectal absorption.

In passing, may I ask whether the students present have given any thought to the modifications or imperfections of rumination that are patent to the analytical observer in cows that are under suspicion? Too often, although something has been noticed amiss with the animal, the matter is culpably neglected because she has been seen to chew the cud, and therefore is considered in good health. But close observation reveals that she is ruminating in a perfunctory manner, giving perhaps only thirty or forty or less cuts to each bolus, instead of the normal sixty or more. You know that when a bolus is raised to

the mouth it is thrown as if by a cut to the right or left side of the buccal cavity, and that all the succeeding cuts are in an opposite direction. There is room for research work here to determine the percentage of cows that cut from left to right or right to left; whether one that cuts right to left at one time reverses the direction on a future occasion (we know that the same direction is maintained throughout each complete rumination period); how many rumination periods a cow has in twenty-four hours; the number of boluses dealt with in a normal period; and the time that elapses before rumination begins after dry and after moist food; and many other points there are that need solution. Of this I am convinced, that very useful deductions can be made through observing the ruminating cow, and I have found this in practice as delicate a guide for diagnosis in the saucy neurotic cow while she is going off or returning to health as is the thermometer in febrile complaints. The fewer the number of cuts to each bolus the further she is from health; further decrease denotes greater departure, while increase indicates a returning to normal. If these premonitory signs of ill-health were better observed and their significance understood, timeous treatment would prevent the onset of more serious and often fatal consequences.

Mr. MEIKLE, replying, said he was pleased his paper had provoked so much discussion. He thought this disease was not more prevalent in Ayrshire than in other breeds. Cold applications to the head had been tried by him, but with no success. Similar symptoms were shown in all three diseases: stomach staggers, milk fever, and intoxication from the uterus, and the treatment for all was practically the same. It was always best to inject the udder. He gave quite often up to 6ozs. chlor. hyd.—not all at once, but at short intervals till the cow was asleep. He thought that trembling in sheep was the same disease, and ought to be treated as such. The springtime was the period when this was most prevalent. He had not given calomel a very great trial, and never used barium chlor. The stomach tube and pump had been employed by him, but without much success. He had tried injecting the medicine into the rumen, but the results were not encouraging. The slings were a last resource with him. The name cerebro-spinal meningitis did not commend itself to him.

LANARKSHIRE FARMERS AND MILK GRADING.

At the annual meeting of the Lanarkshire Branch of the N.F.U. of Scotland a discussion on the milk-grading question took place, at the close of which a resolution in the following terms was passed:—"That this meeting is strongly of the opinion that all members of the Royal College of Veterinary Surgeons practising in the county of Lanark should be approved by the County Council as persons entitled to examine herds under the Milk and Dairies Act and relative Orders, and that their certification should be sufficient for the issue by the Council of certificates under the Act for the sale of Grade A and certified milk."

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AN INSURANCE POLICY AGAINST A GREAT NATIONAL LOSS.

We were interested and rather amused recently, on picking up a newspaper, to notice that a well-known insurance company had seized upon our College motto, *vis unita fortior*, for the purpose of advertising the benefits of insurance, the argument being that one individual standing alone is not always able to withstand the troubles and misfortunes that may come upon him, whereas, if he effect an insurance, he does not stand alone, and has the benefit of a powerful corporation to aid and support him when he becomes the victim of the vicissitudes of fortune. We would welcome propaganda that would impress upon veterinary surgeons this folly of isolation. With our motto for text, many and many have been the Editorials and references to this subject in our journal in years gone by; and what has been the result? It is an open question whether or no the profession is one whit more united now than it was thirty or forty years ago, though we like to think that there is a more brotherly feeling abroad and that the struggles of the Societies and the renewed efforts of the "National" have resulted in bringing men closer together and in breaking in upon that desire for seclusion which seems inherent in members of our profession. His very calling and his daily routine practice make a veterinarian rely entirely upon his own observation. He does not have to depend for his information upon the words of his client. He seldom looks for any help beyond what he can devise with his own wits. He is essentially self-reliant.

We acknowledge that self-reliance is an excellent characteristic, and we think that it may be found exceptionally well developed in the country practitioner, especially the one who has to work in a large scattered district; but we think it may tend towards isolation from a professional point of view. Such a man does not seek the aid or the society of

his fellows. He asks for nothing better than to be let alone to go his own way and make his own living. Outside influences and occurrences affect him little, or not at all. The pity of it is that these are the men whose experience is the most valuable, and if they would only consent to break away from their self-imposed seclusion, they might add enormously to the good of the country and bring priceless benefits to science. We feel sure that they cannot and do not realise their almost inestimable value. It is as if hidden in the depths of the sea like lost treasure, and we begin to despair of bringing it to the surface.

It is the gravest mistake to assume that country practice has nothing of great interest for science or research—that it is essentially commonplace; on the contrary, it is in country practice that the biggest strides in research are bound to be made. The country is crying out for better research, and the public have insufficient confidence and trust in us, and doubt our ability to cope with outbreaks of disease, because, our light being hidden under a bushel, it believes that there is very little proof that we are capable of working as a truly scientific profession along the avenues of research that are continually opening. Mr. Harvey, of St. Columb, has shown us what can be done in the way of original research by a busy practitioner in a large country practice. He has demonstrated also the value of observation and clinical study. Can nothing be done to stimulate others to do similar work, or even to place on record the everyday facts which they see? Quite possibly the men we hear least about, hidden away as they are in the more remote areas, have the most wonderful clinical experience and exceptional practical knowledge, and it is a national tragedy that this knowledge, acquired through years of patient work, should die with them—unrecorded, forgotten. When a man dies, the knowledge which he keeps to himself dies with him, and must be lost for ever. But knowledge imparted to others goes permanently on record, and lives long after the human body is turned to dust.

The loss is great and irretrievable, and we wish men would seize the means to insure against it for the benefit of our profession and our country. The best insurance that we know at present is typified in our motto, and we urge veterinary surgeons to act up to it, to come out into the open, away from their seclusion, into the brotherhood of veterinary science. Their annual contributions to the common knowledge need not be large, but, if regularly given, the accumulated wisdom and *data* which will be secured for the benefit of posterity will prove to be of incalculable and inestimable value.

Clinical and Case Reports.

The Editor will be glad to receive from members and others contributions to this column of reports of interesting cases

A Parasite Hitherto Unrecorded in the British Isles.

By W. G. Blackwell, M.R.C.V.S., Exmouth.

On March 24th I was called to see a pedigree long black sow, which had been losing condition for some time. I found her breathing badly and with a subnormal temperature, off her food, and lying about all the time. She had not passed any dung for two days. I gave a laxative draught, put her on stimulants, and ordered enemas twice daily, with very little result. She died on the 3rd day, and as she was in a swine-fever infected area, I made a *post-mortem* examination. This revealed a few patches of inflammation of the bowel and a much thickened stomach, which, on closer examination, was seen to be covered by hundreds of small worms. I sent a section of the stomach so infested to the Ministry of Agriculture, who wrote me as follows:—

"The stomach is infested with a small trichostrongyle, belonging to the same genus as that which causes death in lambs. This worm was described in 1892 by Hassall and Stiles as *Strongylus rubidus* from stomach of pigs in the district of Columbia, U.S.A. It has since been reported in South America and once in Germany. *There is no previous record of the occurrence of this parasite in the British Isles.* The lesions are much as described by Hassall and Stiles, and there is little doubt that the parasite was responsible for the emaciation and death of the animal in question. Where one animal is as heavily infested as in this case, it is extremely unlikely that the other pigs will have escaped infection."

This sow's farrow, which was weaned a month ago, and the farrow of another sow about the same age, are doing very badly. The Ministry of Agriculture have kindly offered to examine faeces of these pigs to see if they are infected and have been sent the necessary material. The food of these pigs is all grown on the estate.

[Mr. Blackwell informs us that he has "pickled" 4—5 tubes of the parasite "in case any collector or helminthologist cares to have them."—Ed.]

Celluloid for Microscopic Work.

Thin sheets of celluloid can be easily cut with scissors and the pieces used as cover slips. The thickness of the thinnest sheets obtainable from the trade averages 0·11 mm., which is something less than that of glass cover slips (0·14—0·17 mm.). In addition the index of refraction of celluloid (1·5002) is very near to that of cedar wood oil (1·5100); it can therefore be employed with advantage for mounting specimens which are to be observed under oil immersion lenses.—O. Nuzzi (*Riforma Med.*, 1922, 38, 818, through *Med. Sci. Abs. and Rev.*, February, 1923, 406).

Association Reports.

Scottish Metropolitan Division.

Annual Meeting.

The annual meeting of the Scottish Metropolitan Division of the National Veterinary Medical Association was held in the Royal (Dick) Veterinary College on Wednesday, 24th January, 1923. The President, Mr. W. W. Peggie, F.R.C.V.S., occupied the chair.

There were present: Messrs. A. Gofton, H. Begg, J. Henderson, Thos. Dalling, J. Brown (Perth), A. Spreull (Dundee), A. L. Robertson (Arbroath), Sir W. Leslie Mackenzie, Scottish Board of Health; Judge Harvey, Convener Ed. Public Health Committee; J. Russell Greig, S. Robson, Wm. S. Petrie, T. F. Player, Wm. M. Mitchell, W. D. Connochie, J. D. Pottie, Major J. J. Dunlop, Col. Matson, Messrs. D. A. Gill, C. Machattie, J. Taylor, J. Howard Jones, Wm. C. Miller, Dr. O. C. Bradley, Alex. Robb, Dr. T. G. Nasmyth, R. G. Linton (Hon. Secretary), and many others.

Apologies for Absence were read from several members.

Minutes of the previous meeting having been published in the *Record* were taken as read and were confirmed.

Correspondence: The Secretary read a letter from Mr. George W. Weir, the Secretary of the West of Scotland Division, asking the members of the Association to support the Election to the Council of the Royal College of Veterinary Surgeons of the representatives from Scotland, namely:—Dr. O. Charnock Bradley and Messrs. T. M. Inglis and A. Gofton.

The Chairman said he thought it was the duty of the members, along with the other divisions in Scotland, to give their whole-hearted support to these representatives.

Mr. Spreull expressed himself as against any decision being come to in these matters.

Mr. Robertson seconded.

The Chairman said he was very anxious to know the feeling of the members on this proposal because the Division would have to send some report to Mr. Weir.

Professor Mitchell moved that each member should be allowed to act according to his own conscience.

Mr. Begg said he had not been present at the meeting of the Western Branch, but they had appointed him President. The present meeting, he thought, should at least show that they were willing to support their own nominees. He did not say that each member should not exercise his own discretion, but they should do as the English Societies did, and ask that a general support should be given to the candidate mentioned. They should not throw cold water on the aspirations of Scotsmen. They did not get any recoupment from any Central Fund, and they deserved support. He was rather against sending out at the last minute an advice to support these candidates, but it would only be their duty to themselves to let it be known that they were unanimously of opinion that these men should receive general support.

The Chairman approved of what Mr. Begg had said. It would not do to pour cold water on the candidature of these men, but they should allow each member to use his own discretion as to the men for whom they voted.

Mr. Brown supported this view.

The Chairman said he understood it was the general feeling of the meeting that they should give the candidates general support, but that they left it to each member to support the men they thought best.

This was agreed to.

The Secretary read a letter from Mr. Buxton *re* the sale of tuberculin. The Chairman said that that subject only needed to be brought to the notice of veterinary practitioners so that they might realise the importance of it. He did not know if anyone present could answer the question contained in the letter, and give authentic information, but the members present could record a resolution that they strongly condemned the uncontrolled sale and use of tuberculin.

Mr. Gofton remarked that the general opinion of veterinary practitioners was that the sale of tuberculin should be regulated. The profession had been calling out strongly for some form of control, and they should now support the National Society whole-heartedly in urging the control of its sale.

This was agreed to.

The Secretary read a letter from Principal Bradley, the Convener of the Centenary Celebration Committee of the College, inviting members of the Society to the Celebrations in November, 1923 and with reference to the founding of a Fellowship on the occasion.

Dr. O. Charnock Bradley said that this was a letter addressed by him to all the divisions of the Association, because it was fully realised by the Centenary Committee that, if they were to carry out their scheme, they must have help from all and sundry.

It seemed to the Committee also that it was reasonable to expect every member of the profession to help the fund. He would like to emphasise the fact that the aim of the Fellowship was to benefit the whole profession and not merely one institution.

None could have objected to a proposal to raise a fund for the further material equipment of the school, the Centenary of which was to be celebrated. But this, it was felt, would not have been the most fitting manner in which to mark the hundredth anniversary of the foundation of a school, the Founder of which had always and constantly worked for the benefit of a Profession which he practically created in Scotland. William Dick's whole life was devoted to the furtherance of veterinary science and education; and, on his death, he left the whole of his estate for the advancement of veterinary education.

The Fellowship that it was proposed to found as a permanent memorial of the Centenary, it was confidently expected, would help veterinary science in this country, and would thus continue the aims of William Dick. Inasmuch as it promoted veterinary science, the Fellowship would benefit animal industry; and it was, therefore, reasonable to look to the stock-owner and breeder for some measure of assistance.

How help was to be obtained depended largely on local conditions. Doubtless some agriculturists would be willing to give money. Others might prefer to donate animals or produce, which could be sold locally. If the stock-owner contributed only a small sum per head of his stock, the total sum would be considerable. The animal population of Scotland was something like 8,000,000, and it was not too much to claim that veterinary science was instrumental in saving one penny per head per annum. A simple arithmetical calculation on this basis was sufficient to demonstrate that veterinary science produced a very considerable annual saving of national and individual wealth. If the stock-owner could only be got to realise this, he would recognise that appeal to him was not without justification.

The CHAIRMAN said that the Association heartily commended this object and every member would do what he possibly could to help the Centenary Committee to carry out its object. They knew that Principal Bradley invariably carried through successfully all he undertook to do, and he would be ably assisted by his Committee. (Applause.)

Annual Report.—The SECRETARY read his annual report, which was approved.

The CHAIRMAN said he would be glad if members would assist the Secretary by sending in their subscriptions at a reasonable time and paying up arrears.

N.V.M.A.—On the motion of Principal BRADLEY, the President and the Secretary *ex officio*, Mr. Gofton and Mr. Inglis, were unanimously re-appointed to serve as representatives on the Council of the National Veterinary Medical Association.

Nomination of New Member.—Mr. William Clark was nominated a member of the Association.

PROPOSED SCALE OF FEES.

Mr. ROBERTSON said that he had written to the Secretary of the Dundee Division asking if there was a scale of fees for the division, and he had received such a scale. He then rendered his accounts for November and had received complaints from farmers as to the amount he had charged. These farmers said that they could get their work done cheaper by others. He thought that a scale of fees should be issued by the division.

The CHAIRMAN said that the subject of fees was one on which he felt strongly. He did not think it practicable for the Veterinary Profession in any district to have a fixed scale.

A man should more or less fix his own fees. If they had a scale of fees they would reduce the profession to a kind of trades union. He had been in practice for eleven years and had had no difficulty as to his fees. Agriculture was passing through a serious transition period and they should be very careful not to kill the goose that laid the golden eggs. They could not rigidly adhere to a scale if they had it. In some other professions where they had a scale they did not stick to it. They should charge in each case a fee which they considered reasonable to themselves and their clients. For example, they could not charge a shepherd the same as they charged a prize-stock breeder. A man should use his own judgment, and if he was not capable of doing so he would appear to show want of confidence in himself and to be greatly lacking in business capability.

Mr. ROBERTSON said that if a scale of minimum charges was issued it would be of great advantage.

Mr. TAYLOR said the difficulty was the question of mileage charges. In Scotland they got 7½d. per mile, and in London it had been pointed out that 6d. a mile was enough for a motor-car back and forward.

Mr. ROBERTSON said that was not sufficient.

Mr. TAYLOR said that they, of course, charged for the examination after that and he thought that 6d. a mile was going to pay all right.

Mr. ROBERTSON said it would pay so long as their car did not break down.

Mr. SPREULL agreed with Mr. Robertson. When he got home from the war in 1919 he had a meeting with members of the profession, and they agreed on a scale of fees. The minimum in the town was to be 3s. 6d. with 1s. 6d. per mile—that was 9d. per mile each way. That had been successful with them. A year ago he was at a meeting at Perth when this matter had been discussed very fully, and the Dundee scale of fees was taken as just and right, with one dissentient, Mr. T. M. Inglis, who could not agree because his partner was not present. His partner afterwards agreed. That scale had been put in print and had been followed by others. He thought the division should publish a scale because, unless a young fellow had some idea as to the amount of the fees, or another man could tell him what his fees should be, he would be at a loss what to charge. They had got to live and unless they could get a minimum scale he did not see how that could be done.

Mr. TAYLOR remarked that the Glasgow scale was very good, but he did not say whether it was being carried out or not.

Mr. SPREULL said that if they had a scale they could bring up a man before the division for undercutting. If such a man were a member of the division they would be quite in order in charging him with undercutting.

The CHAIRMAN pointed out that they could expel such a man from the division, but that would not be a great hardship to some.

Mr. SPREULL said it would hold him up to blame by other members of the profession.

The CHAIRMAN would have liked to see a much larger meeting of practitioners for the discussion of this subject, which was bristling with difficulties. They might have a minimum scale but it would be difficult to follow it. He did not think it was the

proper time to bring about a revolutionary scheme of fees, considering the present agricultural depression throughout the country.

The divisional meeting was followed by a public one, at which the principal speaker was Capt. Walter Elliot, M.P.

The CHAIRMAN, in introducing Captain Walter Elliot, M.P., said he thought they would all agree with him that the division had been most fortunate in securing Captain Elliot, who had come from London to address them that afternoon. Captain Elliot held a very high and prominent position in the political world, and in his appointment as Under-Secretary for Health for Scotland the Government had given practical proof of their confidence in his ability. Scottish interests, they could feel assured, would be very well served by the new Under-Secretary. He had the greatest pleasure in conveying the heartiest congratulations of the Association to Captain Elliot on the position he had attained. (Applause.)

ADDRESS BY CAPTAIN WALTER ELLIOT, M.P.

Captain ELLIOT then delivered an address on "SOME ASPECTS OF VETERINARY SCIENCE IN RELATION TO PUBLIC HEALTH," in the course of which he said that although that was an old engagement with the division, their President having invited him long ago, before there was any intention of his being even a junior member of the Government, it was an engagement that could not possibly be broken. It was in their interests, he thought, to keep up in every way the high standard which they had achieved in professional education of all kinds, and one of the best ways they could possibly do it was that such a Society as that should meet and discuss such points as he was to bring before them, because it was not a lecture or an address. He wished rather to open a discussion, because he considered that at a meeting such as that, of busy professional men, it would be a very odd thing if the audience had not as much to say to the lecturer as the lecturer had to say to the audience. He might go even so far as to say that the audience expected to say more to the lecturer than the lecturer to them.

The Universities had 17 students in Scotland per 10,000 of the population, while there were only 6 in Ireland and 5 in England per 10,000, and that was some reason why those in far countries had to come to Scotland when they wished for properly trained men. He was glad to meet veterinary surgeons again, because of the courtesy and kindness he had received from that profession on many an occasion. The first time he met them was during the war, and at that time many of the barriers between the Medical and the Veterinary Professions were broken down, and they found out how much there was in common between the two professions, and how much they could learn the one from the other. He would never forget Captain John Going, whom he had met at that time, one of the finest fellows he had known, and one who gave him his first high opinion of the Veterinary Profession. Again, the high standard of attainment had been borne in on him when he sat for nearly a year on the Advisory Committee of Research into the diseases of animals in company with several distinguished veterinarians, and noteworthy among them one who was there that day, Dr. Charnock Bradley, the principal of that College, doubly distinguished in that he held both a veterinary and a medical degree. Sir Stewart Stockman, of the Animal Diseases Department, was also a great friend of his. But he was also to a minor extent a veterinarian himself. He had spent years of his life studying the sheep and the pig, and as long ago as 1910 he was working at the sheep in Glasgow, and last winter he had snatched from Parliamentary duties time to meditate on the pig in the northern fastnesses of Aberdeen. One pig had, for weeks at a time, its cage washed out at 8 a.m. every morning by a member of Parliament—a high honour by which it showed itself singularly unimpressed. (Laughter.)

It was scarcely necessary to emphasise at a meeting such as that that the importance and the intimacy of the relations between the veterinary service, public health, and the work of biologists could not be confined to one species alone. It was his purpose to touch on one or two aspects, as yet unexplored, where he was in hopes that the two branches might co-operate more effectively than they had done in the past. Discoveries in one area affected another area immediately and vitally. In the past few weeks the journals, both lay and technical, had been filled with the praise of Pasteur. They must not forget that that great man, who was neither a veterinary surgeon nor a doctor, laid the foundation of his work in veterinary science before proceeding to put into practice his work with the human. Pasteur began with the maladies of silk worms, and he subsequently passed on to the work of anthrax, protective inoculations on sheep and other stock which had so profoundly affected their whole outlook. He (the speaker) did not intend to touch on the bacteriological aspect of the relations between veterinary science and public health. He thought the veterinary profession was fully capable of dealing with these great problems for itself. One thing struck him on the Committee to which he had referred, that Professor Bullock, of the London University, mentioned that he used the same papers in Pathology for the veterinary students as he used for the medical, and he regarded the veterinary students as showing a higher standard in the examination of that subject.

During the war this country carried overseas some 15,000,000 living animals and, as far as he knew, no epidemic disease had spread among them. These animals had been moved—these migrations, not ordinary movements, were carried out under the instructions given by the Veterinary Profession of Great Britain and they could grasp how far veterinary science had put into application the great lessons of bacteriology. It was not quite so easy as it sounded. He was looking up the records of the war of 1870. A herd of cattle was collected to feed Paris. Disease broke out among them and they were driven from place to place infecting everything they passed. Eventually the authorities disposed of them by

shipping them out into deep water and throwing them overboard, so great was the infection among them. Only a few years later, in the Great War, they were able to carry out infinitely vaster and more extensive movements in a way which showed how far the practical application of veterinary science had advanced. He was struck, while he was a member of the commission to which he had referred, with the advance in medicine in connection with epidemic diseases. They had the whole island divided into areas. They had central control with a day and night clerk at the telephone in order to learn of an outbreak of foot-and-mouth disease and to send a return message right away. They could send out their inspectors to the spot at once, and they had dealt with such epidemics in a way in which the Medical Profession had not been able to deal with similar problems—*e.g.*, the epidemic of influenza. Of course, they had the power of slaughtering in the application of veterinary science, a power which, in the case of human beings, would be very unpopular if it were proposed in Parliament. They could get a *post-mortem* on an animal, which they could not enforce in the subordinate branch of the single species of the primates, with which doctors had to deal.

In bacteriology then, veterinary science in its relation to public health had reached a very high degree of organisation and application.

He wished to discuss the physiological rather than the pathological aspect of the problems of veterinary science.

A word on nutrition in general—the science of nutrition in animals both for the production of meat and as it was being worked out now for human beings. It was not recognised even by veterinarians with what enormous numbers of animals they were dealing. There were 38,000,000 stock animals, of which 23,000,000 were sheep. The science of nutrition intimately affected every one of these animals, and the entire advance of the science of nutrition in all its bearings should be discussed between veterinary and medical scientists under the heading of the science of physiology as distinct from that of pathology. Human medicine was turning very largely to the preventive side, but animal medicine was still, he thought, more in the curative than the preventive stage. He did not know whether he was accurate in that statement or not, but it seemed to an outsider that the cure bulked rather more largely than prevention in the veterinary medicine of the practitioners. That was one of the subjects he should like to be discussed that afternoon. The first aspect he wanted to touch on was the impact of the new science of nutrition on stock feeding in this country and its repercussion on public health from the point of view of the cheapness or dearness of the product. There had been a great loss through animal disease in this country, but they had been able to root out some of it. One million animals died from the "liver fluke" in 1827, two million in 1830 and in 1879-80 three million died of that single disease alone. The economic result of that disease had been a rise in price to the consumer, a resulting excessive cost of the fuel with which people needed to keep their energies going. That was an unrecognised aspect in which veterinary science touched the public health of the country taken in its widest possible aspect.

It was a little pathetic for him to walk through the halls of that College, as he had just done with Dr. Bradley, and to see far and near the evidence of a tremendous shortage of working capital. They could not stress too strongly the economic importance of scientific discovery in its repercussion on the welfare of the nation as a whole. Sir Thomas Middleton had said, during the previous week at Aberdeen, that if they could reduce the expenditure on food from £26 to £25 a head they could go a long way towards paying off the debt due to America. They could reduce that sum in more than one way, and the way they could do it in the scientific world was to make sure that they could get the utmost possible value for every head of stock they raised and every pound of food they put into it, so that they would have no waste of food or have to cut the throat of an animal and bury it in a lime-pit through some disease it had contracted. The single example of the losses through the two illnesses of pleuro-pneumonia and foot-and-mouth disease alone illustrated that point.

These two diseases killed, before they prevented the entry of live animals into the country, 800,000 animals a year, and in the twenty years subsequent they had killed 4,000 animals. That was a triumph of preventive medicine of veterinary science, cogently applied by legislation. They could recognise the difference between 800,000 and 4,000 because these animals were suffering from an acute disease which they could see, with the result that they could slaughter them, but there were large losses due to other diseases caused by errors in feeding which they could not recognise so readily. If they could recognise them in the flocks and herds of this country there would be as great a reduction of the price as they had been able to achieve by bringing 800,000 animals more into the market and not into the slaughter pits for their destruction as useless offal.

The science of nutrition was one of those in which they were making most advance in connection with medicine, and he thought that they were on the eve of a considerable advance there in connection with veterinary science also. He had been assured, on quite competent authority, that it took about 40 tons of feeding stuff to make a ton of meat, and they should be able to do it with 20 tons; that was a very striking figure and would bear looking at by any biologist, and by biologists such as those who were present that day. He did not minimise the opinion of the practical man in scientific work in this country, and the veterinary surgeons were the link between the laboratory and the farm. They had a tremendous responsibility and a great opportunity. In this science of nutrition the whole subject lay spread out before them.

During the last few years the power of transport had brought into their hands all sorts of new food material, and a man could order with the most complete nonchalance a ton of cotton cake or a ton of palm kernel cake. He had only to sign his name in

order to bring food materials from the ends of the earth. Here they were working still on starch values, but they had just begun in medicine to get away from that attitude, and from paying too much attention to starch values and calories which were not the be-all and end-all of diet.

People dogmatised on dietetics from examining the smaller animals; they should look to the veterinary surgeons to give them information. There was, for example, a discussion going on as to the anti-scorbutic principles of milk. How had that been worked out? Very largely by experiments on the guinea-pig. But what milk did the experimenters give to the guinea-pig? They gave it cows' milk. The guinea-pig was born with its teeth, so that it stood to reason that there must be something different about the milk of the guinea-pig compared with the milk of the cow. They said, well, they would look at the Book and find out what it said, but they would not find out anything about it in the Book because nobody had ever investigated one drop of guinea-pig's milk; no one had ever seen a drop of it. (Laughter.) They believed that there was such a thing because the guinea-pig was a mammal; it had mammæ. There had been great experiments on the rat, and they gave it cow's milk. They looked up the Book and there was nothing in it about rat's milk. Not one solitary fact was known about rat's milk, and yet the veterinarians with any amount of knowledge of the milk of the horse, the cow, the pig, and the human being did not come and query the results of these investigations and say "this is a veterinary subject—we ought to be consulted about it." They would never be consulted about it unless they took the only way, which was to take a larger share in scientific controversy. They were conducting mass experiments on a stock population of this country as great as the human population, and they could modify its feeding more easily than they could the feeding of human beings. Much of the cattle feed was brought from the ends of the earth, just as was human food. Tuberculosis, rickets, dental caries, which were all beginning to be classed as deficiency diseases, were treated by medical men and then they turned to the veterinary people and said, "What do you know, what can you tell us, about the deficiency diseases in stock and what would you like to discuss on deficiency diseases in stock?" They were doing much at Cambridge and at the Rowett Institute—but they would have to come to the veterinary people to check and criticise, because they had the ultimate clinical test. (Applause.)

The CHAIRMAN thanked Captain Elliot for his address and expressed pleasure that he had allowed it to be open to free discussion.

Judge HARVEY said that although the Chairman had called on him to speak because he was the Convener of the Public Health Committee, he was a layman, and in matters of administration there was a line which he could not attempt to cross. The lecture was fascinating to him. He must confess that although he had been associated with public health committees for 15 years, that was his baptism as far as veterinary science was concerned, in fact, that was the first occasion on which he had even peeped into the door of veterinary science, although he had been walking along scientific corridors for 15 years. Captain Elliot had done service to the Edinburgh Public Health Committee in giving that address. He (the speaker) realised at once the very close relationship which existed between all that Captain Elliot had said and public health administration. Recently his Committee had had under review the Milk and Dairies Act, and the recent Order under that Act, and one knew from the very superficial glance they had had at the subject, how much they would have to be dependent on the veterinary people for guidance on that matter. He had no doubt that before many years were over the relationship that Captain Elliot had so clearly indicated between veterinary science on the one hand, and preventive public health administration on the other, and the importance of the matters with which he had dealt, would be apparent not only to the hearers in that room but to public health committees and through them to the general public.

Mr. POTTIE said that Captain Elliot had argued from a mouse and a rat to human disease, which would naturally follow. He did not think that was correct, but Captain Elliot touched on a strong point when he said that in the future a great deal more research work would require to be done.

Colonel MATSON did not consider that the Veterinary Profession was giving more of its attention to curative medicine than to preventive. To some extent it was unfortunate that that was not so, as the preventive gentlemen were so efficient, and they were doing their work so well that they were preventing everything in the way of epidemic diseases to such an extent that poor veterinary surgeons, who had to depend for their living on curing disease, did not get a chance. (Laughter.) In the important question of meat inspection, they wanted a liason between the Medical and the Veterinary Profession. He had gone to considerable trouble during the last few weeks in investigating the meat question for the Australian Government, and he had found that in many places—in Liverpool, for example, meat inspection was immediately under the Medical Officer of Health. There were veterinary surgeons employed by the Corporation, but they had nothing to do with meat. There was a great deal of room for both medical men and veterinarians in meat inspection. The Medical Officer was responsible for the welfare and health of the public under his control, and the Veterinary Officer should be responsible to him for the health of the animals on which the people were to be fed. He was sure that if each understood the usefulness of the other they would get on better together, and the inspection of meat from the public health point of view would be much more efficient.

Mr. GOFTON said that not only were there more veterinary surgeons per head of population in Scotland, but the position of the veterinary surgeon in matters of public health was better than it was in England and Ireland. He thought the study of

nutrition and the prevention and control of disease must proceed hand in hand if the best results were to be achieved. In many respects the preventive side of the veterinary surgeon's work was limited by want of co-operation by stock-owners, and also by the want of co-operation and assistance from the Government. It was very important to bear in mind the influence which disease exercised on nutrition and the uneconomic result of allowing disease to remain along with uneconomic feeding. In healthy animals it might require, as Captain Elliot had said, forty tons of food to produce one ton of meat, but in dealing with tuberculous animals from 30 to 50 per cent. more food was required to produce one ton of meat, and there was no saying whether, when it had been produced, it would be fit for consumption.

Mr. BEGG heartily congratulated Captain Elliot on his promotion. They did not know what he had up his sleeve with regard to public health, but they should congratulate themselves that they had at the head of public health matters one who was much interested in the Veterinary Profession. During his life as a veterinary surgeon he had seen gross mistakes in the feeding of animals, and had found that stock-breeders made mistakes through sudden changes of climate in this country. In Lanark he had been called recently to see 70 animals which had died suddenly, and it was simply an instance of those who had charge of them not knowing the science of nutrition. Owing to sudden changes in the climate, and the quick growth of grass, changes might take place in a cow's stomach. The animals might learn to digest such food later on, but they often suffered, going down quickly through auto-intoxication and never recovering. They should learn a lesson from such incidents, making the change in diet so gradually that a cow would not feel it.

Principal BRADLEY said they were exceedingly grateful to Captain Elliot for coming there that afternoon. Fifteen months as co-worker on an advising committee had shown him that Captain Elliot had the faculty of throwing fresh light on whatever subject was being discussed, also, moreover, of making other people interested in subjects that otherwise might possess little attraction for them. Captain Elliot had shown that Pathology alone did not constitute research, and that the biological and physiological problems awaiting solution were no less important than the pathological and bacteriological. One who was not a professed pathologist might hesitate to promulgate such heterodoxies; and it was refreshing and encouraging to have them advanced by one, like Captain Elliot, who could not be suspected of having a secret and concealed axe to grind.

Captain Elliot had done well in bringing before them such an appropriate subject. He moved a vote of thanks to Captain Elliot for his most illuminating and unorthodox address.

Captain ELLIOT said he was much indebted to the meeting for the welcome they had given to him, and particularly because, as Mr. Begg had pointed out, the address which he had given them had not been the one that they might have expected.

The points of contact between veterinary science and public health were very numerous, and those points which they would fix on first, might not be the ones he had brought forward that day—perhaps the latter were less hackneyed. It was a little difficult to discuss subjects with which he might have to deal later on officially, because something might be taken down and used against him there. He had been struck by what Judge Harvey had said, namely, that he had been working for fifteen years in connection with public health and this was the first occasion on which he had come among veterinary surgeons. They and the Public Health Authorities were perhaps working too much separately. The feeding of diseased animals was a point they could not stress too strongly. It was important for them to keep in mind that they did not know which came first, the disease in the animal or the injudicious diet. They must be sure that they did not even create tuberculosis in an animal by wrong feeding.

There was an enormous amount of work to be done in this department. The amount of mineral that a cow needed in a day was quite unrecognised by the majority of both the Medical and the Veterinary Professions. They must keep in mind the wastage in feeding a sick animal—they had the fact to consider that they must make sure which came first, deficient feeding or the actual disease, and they were divorcing animals as much from their natural habitat as human beings were divorced from it. There were three classes of human beings who were kept in prison, namely, convicts, soldiers and sailors, and babies, and they supplied three different kinds of deficiency diseases. Animals which were kept in confinement also developed queer diseases. For example, the pig and the cow. The pig went off its legs and the dairy cow developed tuberculosis. They had to bear in mind that physiology came before pathology and that was why he wished to raise the issue that he had raised that afternoon. He concluded by again thanking the meeting for their reception of his address. (Applause.)

Obituary.

MR. H. H. ROBERTS.

The death took place on March 29th, at Whiteleaf, Leatherhead, of Mr. Henry Hubert Roberts, M.R.C.V.S., who was in his 63rd year. A writer in *The Sportsman* pays the deceased gentleman the following tribute:—

"I am very grieved to have to record the death of H. H. Roberts, M.R.C.V.S., of Leatherhead, who had for over twenty years, attended the Cobham Stud with unfailing zeal and equally unfailing ability. It was at Cobham that I, of course, saw most of him, but he had a very extensive practice, and I never met any one of his clients who had not the fullest confidence in him. In some respects I felt him to be an older friend than the Cobham days denoted, for as a young man he was assistant to a veterinary surgeon in North Yorkshire, and knew all about my early friends. To all appearance he was a strong, robust man, and when he came into the Bungalow, at Cobham, on the Wednesday of the week in which I sailed for B.A., to wish me a good voyage, he looked the picture of health. Now comes this news like a bolt from the blue. By what I have written I hope I shall not alarm anyone who has blood-stock at Cobham, for poor Roberts had a thoroughly capable assistant, who is at present carrying on. 'I have no fear on that score, only sad regret for the good man who is gone."

Southern Counties Division.

Decision to Continue.

The 39th annual meeting of the Southern Counties Division of the N.V.M.A. was held at the Royal College of Veterinary Surgeons, 10 Red Lion Square, London, on Thursday, March 22nd. In the absence of the President (Mr. A. C. Wild), Mr. J. W. McIntosh (one of the vice-presidents) was, on the proposition of Mr. Angwin, seconded by Mr. Samson, elected to the chair, and the others who signed the attendance book were Messrs. J. T. Angwin, E. Whitley Baker, Fred Bullock, John Facer, H. L. Roberts, F. G. Samson, and J. Willett.

The minutes of the last annual meeting, as published in the *Veterinary Record*, were read by the Chairman and confirmed.

Apologies were announced from Professor Hobday, Mr. G. P. Male, and Mr. Tutt. Mr. Male, in his letter, said he hoped the Society would continue with its good work, as there was no doubt those local societies were very necessary for the profession, and he had great pleasure in enclosing his subscription for another year, while Mr. Tutt, in his telegram, suggested the holding of a summer meeting at either Portsmouth or Southampton.

The Chairman said two letters had also been received from their President, Mr. Wild. In the first, which was dated the 28th of February, in reply to one from their Honorary Secretary, Mr. Wild wrote that, as the members took so little interest in the Society, he thought it was time it was wound up as it was no use trying to run a Society when apparently no one wanted to attend. In the second letter, which was also in answer to one from the Secretary, Mr. Wild wrote that he did not think the agenda was of sufficient interest to bring members together, besides which, all interest in the Society seemed to have been lost.

The Chairman remarked that the next item on the agenda was the election of new members, but he thought this had better stand over till after they had discussed the future of the division. He thought they must all regret the letter they had received from their President who was appointed last year. The position of the Society at present seemed to him to be this, that it had practically ceased to exist except in name, and it was a matter for their serious consideration what steps they were going to take in the future. Were they going to make another effort to try and resuscitate interest or were they going to wind up? Unless more life and interest could be infused into the division it was absolutely useless to think of going on, but if, on the other hand, there was the slightest hope of resuscitating interest in the division, he would be the last to give up. It was a Society of many years' standing, and one which had done a lot of good work for the profession, and he, for one, should be exceedingly sorry to see it come to an end.

Mr. Angwin said the Society had really been in existence since 1880, and he thought it would be a very great pity if, owing to lack of support, they now had to drop it. There was a time, he believed, when the outlook was even worse than it was that day, because, according to the old minute books, in 1892, when the annual meeting was to have been held at Guildford, only three members attended—namely, the President, Mr. J. F. Simpson; the Secretary, Mr. C. Pack, and one other member, and as these did not constitute the necessary *quorum*, the annual meeting had to be adjourned till the following month, in London, when they had an attendance of five all told. The next meeting at Southampton, however, saw an attendance of about twenty, and at the following one in London it was nearly thirty. It seemed to him that what they wanted was a new Secretary who could devote more time to the work than he was able to do himself.

The Chairman said he thought they would agree that during his own year of office as President he did everything he possibly could to stimulate interest in the Society. He got Professor Brayley Reynolds, and also his old friend Mr. Willett, to bring forward some very interesting cases for discussion, but the attendance was certainly not worthy of the matter those two gentlemen submitted. One realised the difficulty country members had to get away at times, especially under the conditions which had prevailed during the last few years, but he could not help thinking they might do more in this respect if they wished. He should say there were something like three hundred names on the roll in the Society's area, and yet, with the exception of a few like their Secretary, Mr. Whitley Baker, Mr. Pack, and Mr. Samson, it was generally the Metropolitan members who came to the meetings.

Mr. Samson said there were over fifty members of their profession in Surrey alone, but only about four or five of these were, he believed, members of that division. He was sorry to say it, but the younger members of their profession did not seem to take the same interest in the division that the older ones had done.

Mr. Willett suggested that they might hear the opinion of their Treasurer.

Mr. Whitley Baker said, as most of them knew, he was politically a die-hard, and he was much the same with regard to that division. It seemed to him to be the height of cowardice to wind up. As the Chairman had said, there was a time when they were in even lower water, so far as attendance at meetings was concerned, than that day, but they were not discouraged, and he thought they should make another effort now to carry on. In the earlier years of the Society most of the meetings were held either in London or at Portsmouth or Southampton, and it was the late Mr. Todd, than whom the Society had never had a better or more efficient officer, who suggested that if they held their meetings occasionally at Brighton, they might get more members. That experiment was tried, and as a fact they got several fresh members, and some very well-attended meetings were held in Sussex, and also as far east as Tunbridge Wells, but of late years interest in the Society had dwindled

again. He must candidly admit that, personally, he thought London was the best place to meet, because in years gone by there was generally some inducement to members to come to London for the day; but conditions had now changed, and he thought perhaps the best thing to do was to carry out Mr. Tutt's suggestion. He was afraid it was not much use trying to hold another meeting in Sussex, at all events for the present, although he hoped to see the Sussex members taking a greater interest in the division again in the future. He was wondering whether it would not be possible to carry out Mr. Tutt's suggestion and ask, through the Press, for some member of the profession, for the benefit both of the profession and their division in particular, to come and give them a paper—say on some such subject as fowl and goat diseases. Whatever they decided to do, however, if they asked for subscriptions to be paid, he should stipulate that, in the event of the division having unfortunately to be wound up, any balance remaining over should be handed over to the Benevolent Fund. If they decided to try another meeting down Portsmouth or Southampton way, he would do his very best to try and wake up fresh interest, and he would even consider the possibility of placing some kind of a paper before them.

Mr. H. L. ROBERTS remarked that, as President of another division which had had a somewhat similar experience to that with which they were now confronted in the Southern Counties, he should certainly advise them to adopt Mr. Whitley Baker's suggestion. Two years ago, at their annual meeting, they had a similar question down on the agenda—should they continue? and he suggested as a way out the formation of the executive on a geographical or territorial basis. He also told them, on behalf of the majority of that large meeting of five, that if they abandoned the division, in three weeks' time the Suffolk practitioners would start a new division for themselves. They tried the experiment he suggested, and it had proved a complete success. Mr. Roberts added that he thought it would be a very unwise and, indeed, wicked thing for them to let any division down just now, seeing that they were within a few years of coming into their own in regard to public health matters.

Mr. ANGWIN said he had an idea that if they could only get back more to the west again for their meetings, they might be able to do some good, especially if they could only get a President and a Secretary who were in touch with the members of the profession there.

Mr. WILLETT remarked that personally he should very much deplore the division becoming defunct, and although he had come to that meeting with the intention of tendering his resignation, if they could arrange to get a President and perhaps a Secretary from another part of the district where they were likely to have a better attendance, he would gladly carry on for another year. The point had occurred to him as to whether Mr. Whitley Baker would consent to accept the office of President for the year, and see if they could not give the division a fresh start.

Mr. BULLOCK thought this suggestion an excellent one, and Mr. Willett added that, if Mr. Baker would consent, he was sure they would make a special effort to give him all the support they could from London.

The CHAIRMAN, in summing up the discussion, said he thought the general feeling was that they should hang on for at least another year and try and resuscitate interest in the division, and, as far as he personally was concerned, he would promise to help them all he could as a private member. Those of them who had been thirty years and more in the profession had found these societies of the greatest possible help to them, and he was sure the younger members would also find it to their advantage to associate occasionally with the older members and have their mutual help in discussing matters of interest to the profession as a whole. He took it that it was the feeling of the meeting that they continue for at least another year.

This was agreed to, and

Mr. WILLETT then proposed Mr. E. Whitley Baker as President for the coming year.

Mr. SAMSON seconded, and the CHAIRMAN supported the proposition, which was at once carried by acclamation.

Mr. WHITLEY BAKER remarked that he supposed he could hardly refuse to accept after the attitude he had taken up, but he did so with one proviso, and that was that he had the assistance of Mr. John Facer, of Southampton, as Honorary Secretary.

Mr. ANGWIN remarked that it would give him great pleasure to propose Mr. Facer, and he would also promise to give him every assistance in his power.

Mr. FACER remarked that he had not come to that meeting with any idea of being voted to such an important office as Honorary Secretary, and he must confess he did not feel quite equal to the task, but if it was really their wish he would do his best. (Hear, hear.)

It was also decided that Mr. Whitley Baker should be asked to continue his duties as Honorary Treasurer with those of President, and in acceding to this, Mr. BAKER proposed that two guineas be voted from the division's funds to the Victoria Benevolent Fund, which was unanimously agreed to.

Mr. J. B. Tutt, of Winchester, and Mr. C. Pack, of Lymington, were appointed vice-presidents, and on the proposition of Mr. ANGWIN, seconded by Mr. WILLETT, Messrs. J. T. Angwin, G. W. Bloxsome, G. P. Male, W. F. Maynard, F. G. Samson, and J. Willett were chosen as the Executive Committee for the coming year.

Mr. ANGWIN mentioned that he had two new members he would like to propose, subject to their willingness to accept nomination, namely, Mr. A. V. Nicholas, of Worthing, and Mr. E. W. Garry, M.C., of Chichester.

The CHAIRMAN said he would also have much pleasure in nominating Mr. H. L. Roberts, of Ipswich. It was understood that all three names would be put on the agenda for election at the next meeting.

With reference to the venue of the next meeting, the CHAIRMAN suggested that, in view of the fact that their new President and Secretary were both in practice in the western part of the division's area, it

(*Continued on foot of next page.*)

Notes and News.

The Editor will be glad to receive items of professional interest in these columns.

Diary of Events.

April 27th—Meeting of the Yorkshire Division, Hotel Metropole, Leeds, 3-30 p.m.
April 27th—Meeting of the Royal Counties Division at Aylesbury.
April 30th—Last day for payment of annual fee, £1 1s. 0d., to R.C.V.S.
May 4th—Fellowship Examination.
May 10th—Last day for nominations for election to Council R.C.V.S.
May 24th—Voting Papers and Annual Report R.C.V.S. issued.
May 25th—Entries to be received at R.C.V.S. for D.V.S.M. Examination.
May 31st—Last date for Voting Papers to be returned to Secretary R.C.V.S.

National Veterinary Medical Association.

The acting General Secretary visited the Annual General Meeting of the Mid-West and South Wales Division on April 12th, at Bristol. It was a capital meeting and a very pleasant reunion, when about thirty members turned up in spite of many counter-attractions in the way of point-to-point races and other such diversions. The Mid-West has made a wonderful start since its inauguration three years ago, and is already recognised as one of our most alert divisions. A great deal of its success is no doubt due to the very capable officers it has had, and to Mr. Aveston particularly, because of his untiring efforts and his enthusiasm. It is a remarkable fact that such a young society should have been able in so short a time to have built up a reserve (invested in Consols) and at the same time have started a benevolent fund of its own towards which as much as £85 was contributed last year.

* * * *

From what one saw of the members present one does not think that, if they are typical of the men practising in the district, there are likely to be many calls on this benevolent fund. At any rate one hopes not. There is no sign of *encephalitis lethargica* among them, but perhaps that may be due to the administration of some special antitoxin by the past President. Energy is now being put into the campaign to secure the return of the President, Mr. W. D. Rees, in the forthcoming election of the Council of the R.C.V.S. He is apparently assured of the whole-hearted support of Wales.

* * * *

The President, past Secretary, and present acting Secretary of the N.V.M.A. were invited as guests to the dinner following the meeting, a compliment that was very greatly appreciated, not merely on account of the personal pleasure it gave, but because of the feeling of loyalty and cordiality expressed towards the central organisation. Most unfortunately, and to the continually expressed regret of all, Mr. Buxton was prevented from being present. Great attention was given to Mr. Sumner's address, which was on similar lines to the addresses he has given elsewhere, and which will be published in the *Record* when the notes of the proceedings arrive at the office.

* * * *

Fellows of the Central, Royal Counties, and Southern Divisions would have been interested and pleased to have met one of their old Fellows and a most regular attendant, Mr. R. Porch, who still carries happy memories of the London meetings (and incidentally of the London 'busmen) in years gone by. After so many years among London 'bus horses, private practice must have been quite a curious experience, and we wish we could get Mr. Porch to give us a paper on his reminiscences.

* * * *

Amongst many topics of conversation, it was interesting to hear from Mr. Rees that in some of the Cambrian collieries which are in his charge he only sends down "ponies" of 15-2 h.h. One wonders how many collieries in other parts of the country use animals of such height. Another interesting item was the growing fear in South Wales of the increasing risk of tuberculosis among the miners—this owing to the use of a powder in the mines to render the coal dust less explosive. The powder evidently causes silicosis, which, of course, predisposes to T.B., while the ordinary miners' anthracosis is supposed to be almost a preventive.

(*Continued from previous page.*)

would be a good idea to go down to Southampton or Portsmouth; and on the proposition of Mr. WHITLEY BAKER, seconded by Mr. ANGWIN, it was decided that the next meeting should be held at Southampton towards the end of June, the actual date being left to the President and Secretary to arrange.

Mr. WILLETT proposed a hearty vote of thanks to Mr. J. T. Angwin for his services as Honorary Secretary during the past seven years, and this was seconded by the CHAIRMAN, supported by Mr. FRED BULLOCK, and carried with acclamation.

Mr. ANGWIN, in returning thanks, said he was afraid there had been many shortcomings on his part, but he had the interests of the division thoroughly at heart, and he believed he had attended every meeting except when he was on active service. He should continue to retain his interest in the division, and if at any time he could be of any help to his successor, Mr. Facer, he would be only too pleased. He might even be able to give them another paper some time. (Applause.)

JOHN FACER,
Hon. Secretary.

Tuberculosis Order of 1914.

In Parliament, Mr. W. JOWITT recently asked the Minister of Agriculture whether the Ministry had estimated the total annual expenditure which would be incurred by the Imperial Exchequer if the Tuberculosis Order, 1914, were brought into force; and, if so, what was the amount of such estimate?

Sir R. SANDERS: Yes, sir, it is estimated that if the Tuberculosis Order of 1914 were brought into operation, the annual expenditure which the Imperial Exchequer would incur thereby would be approximately £80,000. This estimate has been made on the assumption that the same conditions would apply as obtained before the Order was suspended, namely, that the Imperial Exchequer would bear three-quarters of the gross amount of the compensation payable under the Order. The estimate is necessarily very approximate, since it is impossible to forecast definitely the number of animals which would be brought within the scope of the Order.

CONVERTING CATTLE INTO FLOUR.

One solution to the problem of the tremendous surplus of beef cattle in Australia and New Zealand has, says the *Meat Trades Journal*, been offered. American Consul MacVitty, Auckland, has just informed the Department of Commerce of Australia's effort to convert surplus cattle into cash. Meat flour is being manufactured just as successfully as milk flour is being made in this country. By a special process of drying and grinding, a meat flour is produced that keeps indefinitely and contains all the body building and nutritive value of the fresh meat, and at a cost which permits easy retailing. The flour is really next to raw meat, for during the process the meat is not cooked, but dried at a very low temperature, and all that is actually lost during the process is about 60 per cent. of water and the deterrent properties. During the drying process the meat is squeezed, and all the fats, blood, and juices are expressed, which are then treated, all deterrent properties are destroyed, and after the final treatment the juices are placed back with the meat. The whole is then dried, and during the process the various gases allowed to escape. That which has been the cause of failures of many experiments for the past fifty years has been removed in this new Remus process.

BRITISH DAIRY FARMERS' ASSOCIATION.

At a meeting of the Council of the British Dairy Farmers' Association on April 11th, reports were read of the Conference Committee, and showed that the Danish Conference was to be held from May 17th—30th. A programme was approved for immediate issue to all members.

The report of the Show Committee contained the following resolution:—

"That at the Dairy Show of 1923, a new Milking Trial and Butter Test Class shall be instituted for Cows of any Breed to be milked three times daily. Cows entered in this Milking Trial and Butter Test Class shall be judged by inspection in the existing Breed Classes, but they shall not be allowed to compete with cows milked twice daily for Milking Trial and Butter Test Class Prizes and Trophies."

This was approved, and it was agreed that the Association's Gold Medal should be awarded to the animal gaining the highest points in the Milking Trials.

Lord Strachie referred to the resolution passed by the R.A.S.E. concerning the possibility of the admission of Canadian Cattle for breeding purposes, and supported by Mr. John Evens, moved the following:—

"That this Council declares its emphatic protest against the reported proposal of the Minister for Agriculture to admit Canadian cattle for breeding purposes as being most detrimental to the livestock of Great Britain, and will neutralise the good which has been done by the Ministry in promoting milk recording."

The resolution was carried unanimously.

Professor Gaiger, of Glasgow, is to spend a month in Forfarshire during the season when horses are usually attacked with grass sickness for the purpose of studying the disease.

The sheep fairs, that used to be such a prominent feature of the agricultural life of Yorkshire and other northern counties, appear to be dying out.

The report presented at the annual meeting of the Hackney Horse Society showed that the income from the Doncaster show last year was £2,824, and the expenditure £2,836. The following were elected to fill ten vacancies on the Council:—Sir Edward Mann, Messrs. A. Beldam, J. Morton, A. R. Fish, H. Gilding, C. F. Kenyon, W. A. Barron, H. J. Colebrook, B. W. Mills, and E. Glen.

The s.s. Modasa has just landed at the Royal Albert Docks a cargo comprising one rhinoceros, one zebra, one eland, six buck, three monkeys, and two wild cats from Mombasa.

FOUR 2,000-GALLON COWS IN ONE HERD.

The distinction of breeding and developing four 2,000-gallon cows has fallen to Messrs. H. and B. Poole, of Hill House, Lawford, Essex. The fourth animal in their British Friesian herd to complete this yield is Lawford Olive, calved in 1915, who achieved her record on March 15th, 315 days after dropping her fourth calf. Messrs. Poole's old-established herd gained fourth place in the third Silcock Cup Competition.

CORPORAL PUNISHMENT FOR CRUELTY TO ANIMALS.

The Protection of Animals (Amendment) Bill, brought in by Captain Arthur Evans, Colonel Sir Charles Burn, Sir Leslie Scott, Major Despencer-Robertson, Mr. Jarrett, and Mr. Shakespeare, proposes to empower a court of summary jurisdiction to order corporal punishment in cases of conviction for cruelty to animals.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Demodectic Mange in Cattle.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—The *Review of Applied Entomology*, Series B., Medical and Veterinary (Vol. x., Ser. B., Part 9), Sept., 1922, contains an extract on demodectic mange in a bull, in which it is stated "records of the occurrence of demodex in cattle are rare." One animal, a pure-bred Guernsey bull in Pennsylvania, is reported to have been affected. The extract also states "it has been found in Nyasaland." May I point out that I reported that demodectic mange was very common in cattle of N.W. Rhodesia (report occurred in your paper about 1917). Further, demodectic mange, although not prevalent, has a wide distribution in this territory (Tanganyika). I found follicular mange—proved by microscope—in a goat in N.W. Rhodesia.—Yours faithfully, J. MALCOLM ARMFIELD, District Veterinary Officer.

Veterinary Department, Dar-es-Salaam,
Tanganyika Territory,
December 15th, 1922.

The Editor begs to acknowledge the receipt of communications from the following:—Messrs. E. Whitley Baker, J. Campbell, A. Gofton, J. L. Ll. Jones, E. Morgan, Trevor F. Spencer and Colonel G. K. Walker.

Army Veterinary Service.

LONDON GAZETTE—WAR OFFICE—REGULAR FORCES.

April 10th—Temp. Qrmr. and Capt. C. Budd, M.B.E., relinquishes his commission on completion of service, and retains his rank (April 1st). Capt. J. F. Rankin to be Major (March 14th).

Diseases of Animals Acts, 1894 to 1914. Summary of Returns.

Period.	Rabies. Cases Confirmed. Dogs.	Rabies. Cases Confirmed. Other Animals.	Anthrax. Outbreaks confirmed.	Anthrax. Animals attacked.	Foot-and-Mouth Disease. Outbreaks confirmed.	Foot-and-Mouth Disease. Animals slaughtered as diseased or exposed to infection.	Glanders (including Farcy).* Outbreaks reported by the Local Authorities.	Glanders (including Farcy).* Animals attacked.	Parasitic Mange.* Outbreaks reported by the Local Authorities.	Parasitic Mange.* Animals attacked.	Sheep Scab. Outbreaks reported by the Local Authorities.	Swine Fever. Outbreaks confirmed.	Swine Fever. Swine slaughtered as diseased or exposed to infection
GT. BRITAIN.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Week ended 31st March, 1923	...	...	13	21	...	...	...	...	5	7	7	27	18
Corresponding Week in 1922	...	...	15	15	13	1209	...	...	29	41	8	14	7
1921	1	...	9	13	...	...	1	1	42	79	6	19	10
1920	...	...	9	11	...	...	...	...	85	126	9	54	20
Total for 13 weeks, 1923 ...	...	...	186	206	5	243	1	1	347	522	278	441	174
Corresponding period in 1922	...	...	162	177	1058	50325	...	...	528	799	345	303	108
1921	17	1	179	209	24	2326	3	6	1013	1628	318	273	75
1920	3	...	128	159	39	2051	9	16	1789	3202	252	568	202

NOTE.—The figures for the current year are approximate only. *Excluding outbreaks in Army horses.

IRELAND.													
Week ended 31st March, 1923		...	...	...	...	...	...	Outbreaks 1	1	5	15		
Corresponding Week in 1922	...	...	...	...	...	...	...	4	4	3	16		
1921	...	...	...	...	...	...	...	1	2	...	...		
1920	...	...	...	...	...	...	...	2	20	...	1		
Total for 13 weeks, 1923	...	...	...	...	...	...	...	30	45	53	330		
Corresponding period in 1922		...	...	...	...	...	...	48	80	65	399		
1921	...	...	...	2	41	...	...	31	111	17	124		
1920	...	...	...	...	...	1	3	50	125	2	5		

NOTE.—The figures for the current year are approximate only.